







OPPOSITE PAGE FROM TOP LEFT: FEDOR SIDOROV/FOTOLIA; RON KHOSLA PHOTOS.COM; RON KHOSLA; MIKAEL DAMKIER/FOTOLIA; JOHNERIGLASSHOUSE; TOMAS BERCIC/ISTOCK; STÉPHANE GROLEAU; FOTOLIA VIII/FOTOLIA. THIS PAGE: STÉPHANE GROLEAU. PAGE 32: RON KHOSLA. PAGE 33: STÉPHANE GROLEAU

Cultivating Compassion in the Garden

By avoiding by-products of animal exploitation and environmental degradation, you can have a humane, eco-friendly backyard—and save money, too

by ANGELA MOXLEY

If you're an organic gardener, you probably savor your flowerbeds and vegetable patches—and well you should. They're free of chemical fertilizers and pesticides that leak into waterways and poison the flora and fauna. They nurture plants suitable to the climate. And they infuse the soil with only natural materials that stimulate biological processes.

But wait: If you're an animal lover, you may want to take a closer look the next time you reach for a garden product sold as organic or "natural." Chances are you'll find ingredients like bonemeal, blood meal, and feather meal. You may see these slaughterhouse products sold individually, touted in many of the garden catalogs arriving in mailboxes this winter as all-natural additives.

There's a little-known contradiction inherent to this aspect of organic gardening, which combines reverence for sustainability and ecosystems with a reliance on materials that involve the exploitation of animals and wild habitats. Animal-based fertilizers and commercially sold manure are usually the end results of factory farms, which raise animals under cruel conditions that couldn't be more unnatural or damaging to the environment, no matter how much companies greenwash these items by claiming to recycle animal waste. Other organic products come with ecological red flags; the harvest of peat moss and predator urine causes harm to wild species.

Fortunately for the compassionate gardener, it's possible to grow plants without any of these materials—as previous generations knew for centuries before the birth of commercial horticulture. "All of the little critters in the soil—the ones you can see with your eyes and the ones that you can't see without a microscope—they all are cycling nutrients through the soil," says Jon Traunfeld, director of the Home and Garden Information Center at the University of Maryland Cooperative Extension. "As they

Cover crops function as green manures to feed greenhouse tomatoes (this page); farmers like Kate Khosla (left, on solar-powered tractor) and Ron Khosla grow crops on their 77-acre property without the use of animal-based fertilizers.

How Does Their Garden Grow?
HUMANELY!

THE GARDENERS: Ron and Kate Khosla

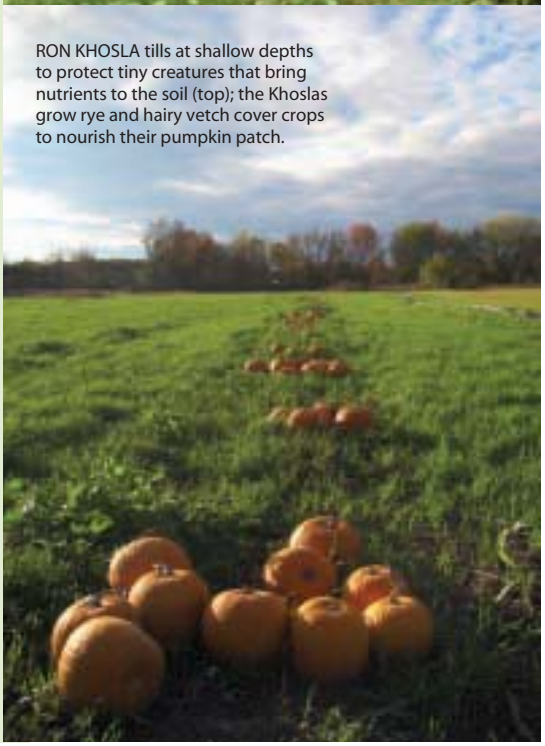
LOCATION: 77-acre Huguenot Street Farm in New Paltz, N.Y.

GREEN BONUS: The Khoslas switched to the plant-based approach nine years ago for ethical reasons, but Ron Khosla says it also reaps unexpected rewards. Unlike a friend of his who farms with animal manure, Khosla uses cheaper cover crops to feed the soil. And because he tills at a shallower depth, he consumes less fuel. "If we look at the money I've saved in five years, it's enough to send one of [my friend's] kids to college," he says. Plus, soil tests show that his is the healthier dirt.

CRITTER COMPASSION: The Khoslas eschew quick fixes like pesticides and lethal predator control, so risk management can be more complicated. Last year, they lost thousands of dollars when crows feasted on their watermelon crop. But they remain focused on the bigger picture of a humane harvest. If the crows return, they'll try using balloons to scare the birds away or cloth to protect the plants.

This commitment extends to even the tiniest of creatures: worms and microorganisms that churn the soil and fertilize it with their waste. To preserve the lives of these subterranean worker bees, Khosla monitors the soil's wetness so he knows when they've dug a little deeper into the ground. Then he tills a few inches above that.

ONE STEP AT A TIME: Khosla says not everyone will be able to achieve a totally cruelty-free system—but it's important to think of it as a process. "I think a lot of times people don't do things because they can't figure out how to do it completely," he says. "I think that it's healthiest to say, 'If [I've] always farmed using manure, I'm going to try to cut my manure use just by half this year, and here's how I'm going to supplement it.' The question is: Did you try as hard as you can to explore alternatives?"



RON KHOSLA tills at shallow depths to protect tiny creatures that bring nutrients to the soil (top); the Khoslas grow rye and hairy vetch cover crops to nourish their pumpkin patch.

grow, they take nutrients up. When they die, they return those nutrients. So if you don't add any animal manures, if you don't add bonemeal or blood meal, you can still have a healthy garden. That's what happens every day out in nature."

A growing movement has sprouted to demonstrate this concept, starting in the United Kingdom in the mid-'90s and spreading more recently to the U.S. Proponents promote some of the techniques used in conventional organics, including the use of native plantings, the rotation of diverse crops, and the attraction of natural predators for pest control. But they differ on other points.

Rather than passing nutrients through farm animals to produce manure, plant-based systems achieve soil enhancement through the use of cover crops, or plants known also as "green manures." Before the crops flower, they're chopped down and mixed into the soil to feed microorganisms that pump nutrients back into the dirt.

The ideal plant-based system also avoids the wasteful importation of fertility-in-a-bag from the garden store, reducing fossil fuel consumption and saving money, says Meghan Kelly, cofounder of the Vegan Agriculture Network. Fertilizers come instead from the gardener's own property (in the form of kitchen compost or leaves) or region (in the form of hay bought from a neighborhood farmer).

Hand-in-hand with this localized approach, Kelly advises gardeners to take a long-term perspective. "If you start with a lawn and you want to start gardening right away, then [you're] going to be more inclined to buy these bagged materials and to import these sorts of things," she says, "whereas if you start to prepare the soil at least a season ahead of time, then the soil that you have might be more ready without necessarily buying dirt."

Traunfeld says many organic gardeners have discovered the wisdom of waiting; even high-maintenance vegetables can flourish under such a system. "By adding 3- to 4-inch layers of compost every year, twice a year," he says, "they get to a point where they can put a tomato plant in the ground and really get a great crop without adding additional nutrients."

For gardeners who want to boost a droopy houseplant or start some seeds, or apartment dwellers who have nowhere to keep a compost bin, the garden store may be the only choice. In these cases, says VAN cofounder Stéphane Groleau, humane gardeners must make their voices heard. Though animal-free products exist, they are not yet widely marketed. "Companies … won't produce alternatives if there is no demand," he says.

BUYER BEWARE

Don't be fooled by these gardening products that, upon closer look, aren't as natural or green as their packaging may claim

▸ **ANIMAL-BASED FERTILIZERS** Bonemeal, blood meal, and feather meal are slaughterhouse by-products. Watch for these ingredients in products sold more generically as organic soil, potting mix, or fertilizer.

Likewise, most manure comes from animals confined in factory farms, even when labeled organic. (U.S. regulations state that organic manure doesn't have to come from animals raised organically.) If you do use manure, buy it from local sources where you can verify that the animals have been raised under more humane conditions than factory farms provide.

To enrich the soil, use cover crops and regularly add organic matter such as grass clippings, leaves, and compost. The University of Maryland's Jon Traunfeld also recommends digging trenches a foot deep and burying coffee grounds, tea leaves, and vegetable scraps. For a quick infusion of nutrients, he says, make "compost tea" to water or spray plants: Fill a pillowcase or sack with a gallon of compost, then tie the bag and soak it in a five-gallon bucket of water. If plants need a push in cooler spring weather—particularly leafy green vegetables like lettuce and broccoli—Traunfeld advises using products such as cottonseed meal, alfalfa meal, and kelp meal.

▸ **INSECT AND DAMAGE CONTROL** Because it's probably impossible to collect urine from free-roaming animals in the wild, predator urine products are most likely gathered from wild animals confined under inhumane conditions, says Laura Simon, field director for The HSUS's Urban Wildlife Program. To keep garden-munching critters at bay, use native plants and try humane harassment devices and repellents, such as motion-activated sprinklers.

ATTRACT LADYBUGS and other winged allies to your garden the natural way—by planting their favorite flowers.

Some gardening stores and websites sell aphid-devouring insects such as ladybugs, lacewings, and praying mantises as a natural method of pest control, but the insects may be plucked from the wild and shipped under stressful conditions. Instead, invite these winged allies to move in of their own accord: Plant their favorite flowers, such as daisy, mint, carrot, sweet alyssum, and dill.

▸ **ECO-UNFRIENDLY PRODUCTS** Sold in bags as a moisture retainer, peat moss is also used in potting and seed-starting mixes. But peat bogs host sensitive ecosystems brimming with rare species of plants and animals, and they preserve a 10,000-year record of climate, vegetation, and human activity, according to the International Mire Conservation Group. They also store vast amounts of carbon, a crucial role in a world increasingly warmed by carbon release. Industry groups say peat can regrow a few years after being harvested. But the IMCG counters that new growth pales in comparison to the peat of a millennium. And coir, a moisture-retaining fibrous material billed as a peat moss alternative, may be no better. This by-product of the coconut industry is imported from tropical areas, making it a no-go for those concerned with shrinking their carbon footprints.

VAN's Stéphane Groleau suggests leaf mold as one alternative: "Take tree leaves and let them start to rot for maybe one year, and after that year, you have this really dark, leafy, semidigested material." Traunfeld says gardeners who start seeds can cut their use of peat by half—and soften the blow that pricey peat deals to their pocketbooks—by mixing the growing medium with compost.

Louisiana cypress mulch is another unsustainably harvested product, according to the Save Our Cypress Coalition; it comes from widespread clear cutting of the Bayou State's cypress forests, home to vulnerable species such as the Louisiana black bear and the ivory-billed woodpecker. In 2004, a scientific panel found that most of the logged areas have been forever altered and won't regenerate. To retain moisture and control weeds, Groleau recommends using hay, grass clippings, tree leaves, or chipped branch wood (tree branches and twigs less than 7 centimeters in diameter); even compost-covered cardboard or newspaper will work, he says.

ASK THE EXPERTS about organic gardening and pest control at *hgic.umd.edu*. Find peat alternatives, seed-starting recipes, and additives appropriate for a variety of soil conditions at *veganorganic.net*. For tips on coexisting with wildlife in the garden, check out *humanesociety.org/wildneighbors*.